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CORPORATE STRUCTURE OF LEADING FIRMS IN EUROPE: DOES COUNTRY OF ORIGIN STILL MATTER?

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ABSTRACT

This article traces the changing impact of national differences on the geographical and industry diversification strategy of leading firms in Europe in 1987-2000, a period of intensified European integration. The results indicate that, whereas country of origin had a significant effect at the beginning of the period, its impact has gradually diminished over time, with firms overall focusing resources on core activities but at the same time expanding production more internationally. However, some country differences do persist over time. Especially firms originating from Germany and Italy appear to be still significantly influenced by national differences.

INTRODUCTION

Since the introduction of the Single Market Programme (SMP) in 1987, it has been the continuous aim of European policy makers to create a European-wide environment where people, goods, services and money can move with a minimum of cross-border restrictions. To this purpose a legal framework has been created at the European level that integrates the European economic market and as such stimulates EU-wide market competition, without imposing reforms in national institutions on the different Member States.

However, has this 'integration from below'-process proven to suffice in creating a real 'United States of Europe' for the business community or do national differences continue to have an important impact on the corporate structure of firms in Europe? Despite the establishment of the Euro as the single currency in 12 of the 15 Member States, EU countries still maintain their own tax regimes, including tax policies that cover pension schemes. Corporate tax rates, which vary from 57% in Germany to 28% in Sweden, have been used for years as a competitive weapon by national governments interested in attracting companies to locate operations within their national borders (Becker, 1998). Differences in social norms among EU countries are likely to exasperate these competitive pressures: flexible working hours, minimum wages, social security, are all elements that influence business. Corporate governance thinking and systems within Europe are also very different from one country to another (Pedersen and Thomsen, 1997). The market-oriented governance system in the UK is different from the network-oriented (or Rhineland) governance system in Germany or the Latin system in Spain, France and Belgium. Studies have shown that different corporate governance structures have an important impact on the corporate strategy of EU companies (Van Hulle, 1997). Moreover, Aguilera and Yip (2003) argue that differences in national corporate governance systems can have a significant influence on the internationalisation process of firms within Europe.

The above-mentioned issues are only a selection of national systems that are still in place, but they are illustrative for the national differences that remain important for firms doing business in Europe. As firms are most familiar with the culture, language and regulations of the home country, the home country still plays an important role in the global/European strategy. Van Pelt et al. (2002) found that in 2000 the leading European manufacturing firms still locate 59% of their production in the home country[i], indicating that the national origin of firms still heavily weighs on the strategy that firms display in Europe. However, in 1997 this percentage was 67%, showing that the EU region or even the world

gradually becomes the 'market' for doing business, even for companies originating from large home countries such as France or Germany.

This paper aims to empirically investigate how the tension between the integration from below fostered at the EU level and national differences have impacted the corporate structure of firms in Europe over the period 1987-2000. More specifically, we hypothesise that national differences remain having an important influence on the degree of industry and geographical diversification of firms in Europe, even 15 years after the introduction of the SMP. The analysis is based on a unique database covering the product and geographical scope of the leading firms in the European manufacturing industries over the period 1987 (start of SMP) to 2000 (near completion).

LITERATURE OVERVIEW

Before the introduction of the SMP, national champions - mostly originating from large Member States - could retain a leading position in Europe. Through the process of increasing EU market integration, being a national leader becomes no longer enough to be a leader at the EU level (Sleuwaegen et al., 2001). Also Hayward (1995) discussed the restructuring of Europe's national champions into international champions along the process of European market integration. Increased competition as a consequence of the integrating EU environment forces firms to adapt to that environment and to acquire a similar form of organisation (cfr. "organisational isomorphism", Hawley, 1968). More particularly, we will investigate in this paper the restructuring of firms in terms of industry and geographical diversification.

For firms to achieve and maintain a leading position in an industry within the EU market, a focused use of resources becomes more and more important. Teece et al. (1994) a.o. have shown that if competition in the industry becomes tougher - because of market integration - firms have to refocus and concentrate resources to ensure survival. By divesting less performing activities, firm resources can be concentrated in fewer (and more equal) activities, leading to more investment in efficient business lines (Markides (1995), Zook (2001)). Firms diversifying only around core resources have been shown to be more profitable than firms that diversify more broadly (Singh and Montgomery, 1987; Doukas, 1995). Recently, Doukas and Lang (2003) empirically examined the relation between FDI, industrial diversification and firm performance and clearly found a positive (negative) effect between core-related (non-core-related) geographical diversification and performance.

On the other hand, the European integration process and more generally the globalisation wave have stimulated cross-border investments[ii], leading firms to operate more internationally. With the dismantling of trade barriers within Europe, firms would restructure activities such that regional networks emerge, in which the best location for productive activities would be determined based on economies of scale, transportation costs, resource sharing and location- and industry-specific advantages (e.g. Vandermerwe, 1993; UN Report, 1993; Markusen, 1998). This would result in a European-wide network where individual activity lines would be concentrated in one or a few locations, where the best skills or conditions to perform this activity are provided. Internal restructuring of production networks around the EU have been noted for firms across all industries (Benito, 1997).

Combining these elements, one could expect that within a perfectly integrated economic EU market firms would converge to a "European" corporate structure with a diminished degree of industrial diversification ("return to core activities") and an increased level of geographical diversification. However, at the macro-economic level Dunning (1997 a,b) found that, although the geographical and industrial distribution of inward FDI into the EU had changed to reflect a certain degree of rationalisation, overall production activities have not been relocated drastically within the EU. Also, many studies found that despite the converging trend over time, firms are still affected by their original background (Hu, 1992, Porter, 1990). Yip et al. (1997) demonstrated that country of origin influences global strategies of firms through national history, culture and the institutional environment in which the firm operates. Duysters and Hagedoorn (2001) found that even in the global computer industry region/country of origin effects persist over time.

In this paper we confront these two opposing forces (integration process at the EU level versus national institutional impact) and empirically investigate the impact that national differences may still have on the degree of and changes in industrial and geographical diversification of leading firms within Europe after a decade of European economic integration. We also look into the changing balance of power between these two forces over time. Does the framework created at the European level appear to be a sufficient instrument in pushing firms to make efficient use of the integrated European market or do the national differences still hinder the European-wide deployment of firms' resources? To our knowledge this is the first empirical research to measure the changing impact of national differences on corporate structure in the period 1987-2000, a period in which the EU integration process has been completed. Although we cannot directly link the restructuring patterns observed in the

data to the market integration process itself, the results of our study do give a good indication of the changing economic environment within the EU since the introduction of the SMP.

THE DATA

The study builds upon the EU Market Share Matrix (MSM), a unique data set containing information about leading manufacturing firms in the EU. The MSM for the EU has first been constructed for 1987 and again for 1993, 1997[iii] and 2000. It consists of all "leading firms" in EU manufacturing in the years 1987, 1993, 1997 and 2000.

Leading firms' total turnover has been disaggregated, based on individual company reports and using a common industrial classification scheme. A firm enters the MSM as a "leading firm" in a particular year if it is *one of the five largest EU producers in at least one EU manufacturing industry in that year*. Any firm having production facilities in the EU qualifies to enter into the matrix. This implies that also non-EU firms (by origin) can be included in the MSM, if their European manufacturing operations (only this part of non-EU firms is taken into account) in a particular industry are among the five largest in the EU.

For each leading firm in a specific year, the matrix includes (i) estimates of its *EU production* (measured in € bn), in <u>all</u> different industries it operates in - i.e. not only those in which it is a leader, (ii) for each industry, disaggregated estimates of production across the different Member States.

For all four years of data collection, this results in a three-dimensional data set with each cell in the database containing the value of production of a leading firm in a particular manufacturing industry within a particular Member State. The data collection is limited to 66 manufacturing industries (see Appendix 1) and covers the 12 EU Member States[iv], i.e. the EU as it existed before the accession of Austria, Finland and Sweden to the EU in 1995. To make comparison over time possible, a similar 'time-comparable' matrix for all years considered was constructed with a geographical coverage of the 12 original Member States[v]. As a consequence, Austria, Finland and Sweden are considered as non-EU countries and production of firms originating from these countries is treated as non-EU production throughout the analysis.

The MSM database is a valuable tool to provide estimates of various structural dimensions. At the level of the individual firm, it contains information about the level of industry diversification and intra-EU geographical diversification. Using the same methodology over the four years of data collection[vi], the database allows investigating

changes in the corporate structure of EU firms since the launch of the Single Market Programme (1987-2000).

In the next paragraphs various indicators will be used to measure the degree of geographical diversification:

- The number of firms with production outside the home country ('transnational' firms)
- The average number of countries in which firms have production activities (country entries per matrix firm)
- For the EU12 firms in the MSM, the percentage of total production that has been produced in the home country (average % home production by EU firms)
- The number equivalent of the Herfindahl index (Herfindahl NM_i), the weighted sum of production shares in all Member States, where each share is weighted by itself:

  Herfindahl index for firm i, active in j Member States: $M_i = 1-\sum_j (x_{ij}/x_i)^2$

  Number equivalent of the Herfindahl index: $NM_i = (1-M_i)^{-1}$

Analogously, the degree of industry diversification will be discussed using the following measures:

- The number of firms with production in more than one industry ('diversified' firms)
- The average number of industries in which firms have production activities (industry entries per matrix firm)
- The number equivalent of the Herfindahl index (Herfindahl ND_i), the weighted sum of production shares in all industries, where each share is weighted by itself:

  Herfindahl index for firm i, active in j industries: $M_i = 1-\sum_j (x_{ij}/x_i)^2$

  Number equivalent of the Herfindahl index: $NM_i = (1-M_i)^{-1}$

A limitation of the MSM is that the data collection is limited to the leading firms in Europe. Consequently, the results of our study are biased towards the large firms in Europe, although this group of firms does represent approximately 1/3 of total manufacturing production within the EU. The MSM data also excludes firms' operations outside the EU

Member States and does not contain information about non-manufacturing activities. Despite these shortcomings, the MSM is unique in the data it contains. The level of detail in the data is such that we can evaluate the relative importance of the different activities within a firm and also investigate the geographical structure of a firm – not only at the corporate level but also at the level of each individual industry activity within a firm. Moreover, consistency in the methodology that has been used to collect the data allows a comparison over time.

THE IMPACT OF COUNTRY OF ORIGIN ON CORPORATE STRUCTURE

In this section the impact of country of origin on corporate restructuring and more particularly, on the industry and geographical diversification strategies of the leading firms in Europe is investigated. First, some general trends in diversification strategies during the process of increased EU market integration are examined using descriptive statistics of the MSM data. Then a variances decomposition analysis tries to explain in more detail the cross firm variation in the level of industry and geographical diversification over time. Finally, the effect of country of origin on changes in the level of diversification in the various time periods is modelled by means of a regression analysis.

Descriptive statistics on industry and geographical diversification

Over the period 1987-2000 the leading manufacturing firms in Europe have clearly adapted their strategy and structure to benefit from the larger internal market. Firstly, the MSM data show a constant increase in the transnational activities of firms. Table 1 illustrates this trend. While the number of matrix firms returned to the 1987 level in 2000, the share of transnational firms significantly increased over time. The average number of countries in which firms are active has almost doubled since 1987, as well as the number equivalent of the Herfindahl index. However, despite the increased transnational activities of leading firms in Europe, the home country continues to play an important role as the average leading EU firm still produces 67% of its total production in the home country in the year 2000. This makes the location strategy of EU matrix firms still very much home oriented.

Insert Table 1 About Here

Also in terms of industry diversification the leading manufacturing firms in the EU have adapted their strategy and structure to the new European context. Overall, leading firms in Europe show a tendency to lower their level of industry diversification, especially in the last two periods (Table 2): firm resources are being concentrated in fewer industries.

Insert Table 2 About Here

Confronting the geographical and industry dimension of the matrix firms' strategies, the general trend is one of lower industry diversification and increased geographical diversification over the period 1987-2000, in line with the expectations found in the literature on integrating/globalising markets. In general, matrix firms do seem to have reacted to the enlarged European market by refocusing their industry activities and exploiting more activities abroad.

However, the above summary statistics mask a lot of variation in the data (as the standard deviations (St.Dev.) of Herfindahl NM_i and ND_i in Table 1 and Table 2 indicate). As the group of leading firms is very diverse, the behaviour of different groups of firms can deviate from this general trend. In this paper we will particularly focus on the country of origin as source of firm heterogeneity.

Table 3 illustrates that over the period 1987-2000, the non-EU12 firms in the matrix systematically show a significantly higher level of geographical diversification. Also within the group of EU12 firms, large differences exist between firms originating from different Member States. Most firms originating from Spain/Portugal, but also Italy are still national in scope. On the other hand, the percentage of German firms with multinational activities has increased over the period 1987-2000. However, compared to firms originating from other Member States their transnational activities are still limited in scope. Obviously, firms from smaller home countries are expected to show a higher degree of geographical diversification as the small home market limits the expansion of these firms. This is only partially supported by the data. Firms originating from the Netherlands and Belgium/Luxembourg indeed show an above average level of geographical diversification, but this is not the case for firms originating from Denmark. However, the data needs to be interpreted with some caution, as for some countries the number of observations is limited.

Insert Table 3 About Here

Comparing the evolutions in industry diversification for firms originating from different countries, Table 4 shows that especially EU12 firms in the matrix have refocused activities, contrary to non-EU12 firms that even slightly increased their level of industry diversification over the last period. Among the firms originating from EU Member States, on average only German firms did not scale down the portfolio of activities over the period 1987-2000. Firms from all other Member States refocused activities on average. Especially UK firms have not only reduced the level of diversification; many have fully concentrated resources in only one activity. The percentage diversified UK firms has decreased from 92% in 1987 to 66% in 2000. A possible explanation for this more radical restructuring among UK firms might be the open corporate governance system in the UK that pushes firms to a more efficient use of resources to increase their financial performance. The German system on the other hand might be much less driven by market forces.

Insert Table 4 About Here

Combining the geographical and industry dimension of the EU12 matrix firms' strategies, Figure 1 illustrates the overall trend of a lowering of industry diversification and an increase in geographical diversification over the period 1987-2000. Especially firms originating from the very open economy of the UK have made a remarkable shift from diversified firms in the matrix to become focused transnational firms. The smallest changes over the period 1987-2000 can be observed for firms originating from Italy and Germany. Both countries are characterised by many family-owned companies, where the internationalisation process might be hindered by particular national governance issues.

Insert Figure 1 About Here

Variance decomposition analysis: how important is country of origin?

To further investigate the high level of variation in the data, two factors are specifically being analysed: country of origin and the industry in which firms are active. An ANOVA-test is used to examine the impact of both factors on the strategic choices of firms. To allow for an analysis over time, the sample is limited to the surviving firms in the matrix, i.e. those 99 firms that have been in the MSM database during the whole period 1987-2000. These firms have managed to successfully retain their leading position in the EU market over the considered time period. The 66 manufacturing industries have been regrouped into fifteen industry categories, corresponding approximately to 2-digit NACE industries (see Appendix 2). The 99 survivors have been assigned to the industry in which they have the largest share of production. This limitation of the data sample to the 99 survivors did not significantly impact the results[vii].

The first part of our analysis examines to what extent country of origin and industry have an impact on the level of ***geographical diversification***. Table 5 summarises the results.

Insert Table 5 About Here

Country of origin remains highly significant over time to explain the cross firm variation in level of geographical diversification, although with a diminishing effect over time. The industry effect on the other hand becomes insignificant as of the third period. The results imply that the Single Market Programme in the EU might have increased pressure on the surviving firms across all industries to expand internationally. However, different national institutions (e.g. corporate governance system, national tax systems) continue to have an impact on the way firms organise operations internationally.

Based on these results, a more detailed analysis of the impact of country of origin on the level of geographical diversification has been done, including dummies for each country separately (non-EU firms have been grouped together in one category) [viii] (see Table 6). The UK has been taken as the benchmark in the analysis. Similarly, dummies have been included for all industries, with *Tobacco* as the benchmark industry. The analysis confirms that some groups of firms have expanded operations differently than the benchmark UK firms. Non-EU firms (both European and non-European) are significantly different than EU firms in their level of geographical diversification. A possible explanation for this difference is that non-European firms are in a more advanced stage of internationalisation. Firms mostly start their

internationalisation process in neighbouring or culturally related countries before they move into other countries, the so-called waterfall process of internationalisation (Johanson and Vahlne, 1977). Due to their advanced stage in the internationalisation process non-EU firms spread their activities across more Member States. Moreover, to compensate for the liability of foreignness these firms should have significant intangible assets yielding competitive advantage to sustain their leading position in Europe (Delios and Makino, 2000). As intangible assets are mostly deployed European-wide, most of these firms build up transnational networks, which evolve into complex organisations. At the outset such organisations display a high level of geographic diversification. Over time, specialisation within the network may lead to more geographical concentration of activities.

Insert Table 6 About Here

Analogously to the results in Table 5, the industry effect dies out over time; for the years 1997 and 2000 almost all industry dummies are insignificant. Only in 1987 and 1993 a limited number of industry dummies explained a significant part of the variation in the level of geographical diversification, i.e. *Computers, Chemicals, Rubber & plastics and Food & drinks*. Those industries are very global, with a limited number of large transnationals that are active worldwide. However, over time the difference in level of geographical diversification between these industries and the other industries has disappeared.

Next to the impact of country of origin on the level of geographical diversification, we also examined the impact of country of origin on the changes in level of geographical diversification over the period 1987-2000 (Table 7). A linear regression analyses is done for both the whole period 1987-2000, as for the different sub-periods 1987-1993, 1993-1997 and 1997-2000, to examine whether the restructuring process has taken place continuously over time or more concentrated in one of the sub-periods. The model with dependent variable "Delta NM" (change in level of geographical diversification over the specific period) contains the different country dummies, as well as "NM initial" (level of geographical diversification at the start of the period) to correct for the initial level of geographical diversification. Again the UK has been taken as benchmark.

Insert Table 7 About Here

The results for the whole period 1987-2000 confirm that all survivors – irrespective of country of origin – have expanded transnationally over time. The sub-period results show that for firms of all country origins the change in level of geographical diversification was in the beginning of the period negatively impacted by the initial level NM indicating a convergence among EU leading firms in terms of geographical diversification. Taken together with the insignificance of the country dummies, this might suggest that the country of origin effect seems to have played mainly on the initial levels of geographical diversification in the beginning of the time period, rather than on the process of change.

However, compared to the UK, firms originating from the Netherlands and Sweden have increased their level of geographical diversification more drastically. The extreme 'expansion rush' shown by the Swedish firms in the sample might be linked to the accession of Sweden to the EU in 1995. The results from the analyses of the sub-periods indeed confirm that this expansion rush took place in later periods for Swedish firms. The expansion by Dutch firms on the other hand has been especially concentrated in the first period 1987-1993.

For the period 1997-2000 the model became insignificant, meaning that country of origin had no significant impact anymore on the geographical restructuring of the survivors in that last period.

The second part of our analysis focuses on the impact of country of origin and industry on the level of ***industry diversification***, again using ANOVA. Table 8 summarises the results.

Insert Table 8 About Here

Except for the last period, all tests resulted in insignificant models meaning that, contrary to geographical diversification, country of origin and industry have no impact in explaining cross firm variation in industry diversification. This indicates that the trend towards reduction in industry diversification was broadly based. For the year 2000 however, both country of origin and industry have a significant impact on the cross firm variation in industry diversification. Analogous to geographical diversification, the effect of country of origin is stronger than the effect of industry. Also a more detailed ANOVA analysis, including dummies for each country separately (analogous to the analysis in Table 6), yielded insignificant models for all 4 periods, confirming that country of origin has no significant impact on the level of industry diversification.

Similar to the analysis in Table 7, we also tested the impact of country of origin on the degree of change in level of industry diversification over the period 1987-2000 and the sub-periods (Table 9). Analogously to geographical diversification, especially the difference in initial level of industry diversification explains the difference in degree of change indicating that firms which were over-diversified tended to reduce their industry diversification most. Except for Swedish firms, no real country differences can be observed to explain the changes in level of industry diversification. This result is in line with the results found in the previous paragraphs.

Insert Table 9 About Here

EUROPEAN LEADERSHIP THROUGH INTERNATIONAL EXPLOITATION OF CORE RESOURCES

In the wake of European integration and increased market competition firms have clearly been pushed to restructure towards a corporate structure with a reduced portfolio of industrial activities but increased degree of geographical diversification. However, the different national institutions that remain within the EU still have an impact on business. The question remains how this restructuring process has taken place within firms across their various operations. With our unique data from the MSM, we are able to analyse this internal process, as we dispose of data not only at the corporate level, but also at the level of individual industry activities within firms. Thus, the unit of analysis in this section is no longer the firm at corporate level (data that have been used in the previous sections), but the different industry activities within each firm. To allow for a comparison over time, the sample of firms is again limited to the industrial activities of the 99 surviving firms in the matrix. In a first sub-section, the refocusing of leading EU firms is examined in more detail by looking at which activities were exited (core / non-core). After this, the question if international expansion of retained activities is necessary to maintain a leading position in Europe is answered using linear regression analysis.

Focus on core activities

In 1987, the group of 99 surviving firms had a total of 559 industry activities, meaning that, on average, those firms were active in 5.7 different industries in 1987. The majority of activities of these survivors in 1987 were non-core activities, i.e. activities that represented less than 10% of total corporate production. Only 1.8 activities (on average) were core activities (both leading and non-leading).

Insert Table 10 About Here

Since 1987 a complete restructuring of the activities portfolio of these survivors has taken place. Overall, 69.6% of the non-core activities have been divested (i.e. 263 of a total of 378 non-core activities) over the period 1987-2000. Most of these divestments were activities in which the firm did not have a leading (i.e. top5) market position (74% exits in non-core, non-leading activities). On the other hand, divestments in core activities were marginal, especially in those activities where the firm already had a leading position in 1987. The results provide a first indication that the hypothesis of 'return to core' seems to be supported by the MSM data.

To further examine more rigorously which activities were divested, we use a logistic regression on the probability for a firm to exit a specific activity. More particularly, we like to test the influence of the activity being a core or leading activity within the corporate portfolio. The regression analysis also allows to test in addition whether country of origin has an impact on this probability. The model uses the binary variable "exit after 87" as dependent variable. The variable is equal to 1 if the firm exits the industry after 1987, such that the firm is no longer active in that industry in 2000. The independent variables in the regression are the binary variables "Core 87", "leading 87", the initial level of industry diversification "ND 87" and the different country dummies. The sample is again restricted to the 559 activities of the 99 surviving firms in the matrix, which does impose a sample selection bias: obviously, many more matrix firms have divested activities in that period, but have exited the matrix as a consequence of this divestment.

Insert Table 11 About Here

The results support the hypothesis that indeed non-leading and - especially - non-core activities have been divested over the period 1987-2000. Moreover, divestments have especially taken place in firms with a high level of industry diversification in 1987 (positive ND 87). Such firms were too diversified in 1987 to remain competitive over time within Europe and therefore divested heavily during 1987-2000 to retain a leading position in Europe. Next to these general trends, significant country differences remain in the divestment decisions taken by firms. Compared to UK firms, German and non-EU firms show a significantly lower probability to exit industries. It can be hypothesised that the non-EU firms, often being in a more advanced stage of internationalisation, did enter the European market with a level of industry diversification that better fitted the integrated EU market. A possible explanation for the significant difference between German and UK firms could be found in the different national institutional systems in place in both countries.

International exploitation of activities

This part further examines the trend of international expansion at the level of individual industry activities, concentrating on the activities that have not been divested between 1987 and 2000. This allows analysing whether manufacturing leading positions in the EU require a strong international expansion of refocused core activities.

Over the period 1987-2000 the group of 99 surviving firms did not only expand internationally at the corporate level; the increase in geographical diversification is also observed at the level of the individual industry activities (see linear regression Table 12).

Insert Table 12 About Here

However, the change in level of geographical diversification has been more prominent for those activities with a lower initial level of geographical diversification (negative NM initial) and in those firms with a below average change in level of industry diversification over the period 1987-2000 (negative delta ND). Over the period 1987-2000 these activities were able to catch up with the activities that were already exploited on a larger international scale in 1987. This result does not only hold when the analysis is done for the whole period 1987-2000, but also for the sub-periods 1987-1993 and 1997-2000. Only for the period 1993-1997 Delta ND 87-00 shows a different sign.

The analysis illustrates again the deviation in behaviour of Italian and German firms vis-à-vis the benchmark UK. The transnational operations of the different industry activities within Italian and German firms have been significantly less expanded over the period 1987-2000 as compared to the activities within UK firms. Based on the sub-period analyses, we see that especially in the last period 1997-2000 Italian and German firms have lagged behind as compared to the UK. Also in line with the results at corporate firm level, activities within Swedish firms have been expanded significantly more than activities of UK firms.

To further investigate the geographical expansion trend at the level of the different industrial activities, the model in Table 12 has been extended with two variables: "core 87" and "leading 87". This allows researching whether the international expansion rush is only limited to activities belonging to the core of the firm or in which the firm had a leading position, or whether the geographical expansion of activities is a general trend across all activities. Again the analysis has been done for both the whole period 1987-2000 and the different sub-periods.

The results in Table 13 show that the international expansion of operations certainly has not only been important for core and leading activities, but that all activities have been exploited on a much larger international scale since 1987. Only in the first sub-period, core activities have been exploited significantly more internationally than non-core activities. It can be hypothesised that new activities that have been added to the firm's portfolio in the later periods, have immediately been exploited on a much more international scale or that activities which were exited had a large international scale, illustrating that geographical diversification has become more and more important over the period 1987-2000 for all activities within the leading firms in Europe.

Insert Table 13 About Here

CONCLUSION

This paper has traced the changes in corporate strategy and structure of European leading firms against the background of continued European integration by using the MSM methodology. More particularly, we looked at the impact of national differences on firms' industry and geographical diversification strategies in a period of European market integration and how their impact has changed over the period 1987-2000. Has the economic integration process fostered by the European institutions pushed firms to adopt their corporate structure to

efficiently react to increased market competition or do national differences still limit firms in deploying a European strategy?

A number of stylised trends emerge in the MSM data. Overall, leading firms in Europe have reduced their level of industry diversification over the period 1987-2000 in order to cope with the increased competitive pressure in the integrated European market place. Moreover, the remaining activities have been exploited on a more international basis to take advantage of the enlarged European market. These trends are in line with ex-ante expectations on the restructuring of firms within an integrating market.

Over the period 1987-2000 the variation in level of geographical and industry diversification has decreased, indicating a convergence in the corporate structure of matrix firms over time. The fact that especially firms with low initial levels of geographical diversification and firms with high initial levels of industrial diversification adjusted their level of diversification provides additional evidence for convergence to a refocused and more transnational corporate structure.

Firms originating from smaller EU Member States like Belgium, the Netherlands and Sweden did increase their level of geographical diversification proportionally more than firms originating from larger countries. With this increase, firms originating from these countries caught up with firms from other countries in level of geographical diversification. However, some country differences persist over time. German and Italian firms are distinctly different from other EU firms and show the smallest changes in diversification strategies (both geographical and industry) over the period 1987-2000. The particular national corporate governance regime might be a possible factor hindering these firms' international expansion plan.

A non-EU country effect is also found as non-EU firms in all years have a significantly higher level of geographical diversification. This can be explained by the fact that non-EU firms have reached a more advanced stage of internationalisation compared to EU firms. However, over the period 1987-2000, this difference has been gradually reduced.

Whereas country of origin was a significant factor in explaining the variation in the level of geographical diversification, it was not significant in explaining the variation in changes in the level of geographical diversification. Moreover, the country effect faded away for the level of geographical diversification after 1997, giving an additional indication of leading firms moving in the same direction of increased geographical diversification. Convergence towards an 'optimal' level of geographical diversification has taken place over

the period 1987-2000, as indicated by the significantly larger international expansion of firms with lower initial levels.

Firm restructuring took place by exit of industry activities, more particularly by firms largely divesting non-core and non-leading activities, thus supporting the 'return to core' thesis often discussed in the literature. The activities that were retained by firms after this restructuring process have been exploited on a larger international scale since 1987. This was not only the case for leading, core activities, but appears to be a general trend for all activities in which firms remained active.

In sum, country of origin has had a marked effect on the corporate structure of firms in the first time periods, but this effect gradually disappeared over time, providing some evidence of a converging trend in the corporate structure of leading firms in Europe. Only firms originating from Italy or Germany seem to remain significantly influenced by the national institutional system in place, limiting these firms in adapting their corporate structure to the integrated European environment.

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APPENDIX 1

MSM Industry Classification

	Industry
1	First processing of steel
2	Steel tubes
3	Non-ferrous metals
4	Clay products
5	Cement, lime and plaster
6	Concrete
7	Glass
8	Ceramics
9	Basic chemicals
10	Paint and ink
11	Pharmaceuticals
12	Soap, detergents, toiletries
13	Man-made fibres
14	Casting, forging and first treatment of steel
15	Manufacture of metal products
16	Manufacture of tractors and agricultural machinery
17	Manufacture of machine tools for working metals
18	Manufacture of other machinery
19	Computer and office equipment
20	Insulated wires and cables
21	Manufacture of electrical machinery
22	Batteries and accumulators
23	Audio, video, telecom
24	Domestic electrical appliances
25	Lighting equipment and lamps
26	Motor vehicles
27	Motor vehicles parts
28	Shipbuilding
29	Railway locomotives and stocks
30	Cycles and motorcycles
31	Aerospace
32	Measuring, checking and precision instruments
33	Medical instruments
34	Optical instruments
35	Clocks and watches
36	Oils and fats
37	Meat products
38	Dairy products
39	Fruit and vegetables
40	Fish products
41	Grain milling and manufacture of starch
42	Pasta
43	Bread and biscuits
44	Sugar
45	Confectionary and ice cream
46	Animal feed
47	Other foods
48	Alcohol, spirits, wine and cider
49	Beer
50	Soft drinks
51	Tobacco
52	Textiles
53	Leather
54	Footwear

55	Knitwear, Clothing and made-up textiles
56	Wood sawing
57	Wood boards
58	Wood manufacturers
59	Furniture
60	Paper and pulp
61	Articles of paper
62	Publishing
63	Rubber products and tyres
64	Plastics
65	Musical instruments
66	Toys and sports goods

APPENDIX 2

Industry Dummies

Dummy	Description	NACE-code	MSM-code
1	Food and drinks	15	40, 43, 42, 39, 41,44, 49,
2	Tobacco	16	46, 47, 48, 45, 50, 51, 52, 45
3	Textiles, clothes, leather and shoes	17, 18, 19	55, 56+59-60, 57, 58
4	Wood, paper and publishing	20, 21, 22	61, 62, 63-64, 66, 67, 68
5	Chemical	24	9, 10, 11, 12, 13
6	Rubber and plastics	25	69, 70
7	Non-metallics	26	4, 5, 6, 7, 8
8	Metals, metal products	27/28	1, 2, 14, 3, 15
9	Machines	29	16, 17, 18, 27
10	Computers	30	19
11	Electrical machinery	31	21, 20, 22, 28
12	Audio, video, telecom, instruments	32, 33	23, 24, 25, 36, 37, 38, 35, 26
13	Cars	34	29, 30
14	Other transport	35	31, 32, 33, 34
15	Furniture, other industry	36	65, 71, 72

TABLE 1

Changes in geographical diversification, 1987-2000

	1987	1993	1997	2000
Number of matrix firms	221	212	214	222
of which transnational (%)	*66%*	*76%*	*87%*	*88%*
Country entries per matrix firm	3.36	4.30	4.83	5.09
Average % home production by EU firms	88%	80%	72%	67%
Herfindahl NMi	1.61	1.95	2.30	2.74
St.Dev. Herfindahl NMi	0.92	1.10	1.21	1.60

TABLE 2

Changes in industry diversification, 1987-2000

	1987	**1993**	**1997**	**2000**
Number of matrix firms	221	212	214	222
of which diversified (%)	*77.8%*	*80.2%*	*73.8%*	*73.0%*
Industry entries per matrix firm	4.83	4.69	3.63	3.22
Herfindahl NDi	2.13	2.15	1.95	1.85
St.Dev. Herfindahl NDi	1.50	1.32	1.21	1.02

TABLE 3

Geographical diversification and country of origin

	1987			1993			1997			2000		
	Total	**% Multi**	**NMi**	**Total**	**% Multi**	**NMi**	**Total**	**% Multi**	**NMi**	**Total**	**% Multi**	**NMi**
EU12	189	60,8%	1.39	169	71,6%	1.67	159	84,3%	1.98	161	85,7%	2.41
GER	*51*	*64,7%*	*1.20*	*49*	*67,3%*	*1.21*	*35*	*94,3%*	*1.70*	*34*	*91,2%*	*2.06*
UK-IRE	*51*	*68,6%*	*1.50*	*41*	*82,9%*	*2.41*	*43*	*88,4%*	*2.09*	*41*	*85,4%*	*2.59*
FR	*45*	*60,0%*	*1.37*	*39*	*74,4%*	*1.89*	*29*	*89,7%*	*2.28*	*34*	*97,1%*	*2.60*
IT	*25*	*48,0%*	*1.26*	*25*	*60,0%*	*2.04*	*30*	*63,3%*	*1.57*	*29*	*62,1%*	*1.69*
NL	*9*	*66,7%*	*2.27*	*5*	*100,0%*	*2.62*	*8*	*100,0%*	*3.14*	*8*	*100,0%*	*4.18*
BL-LUX	*4*	*50,0%*	*1.76*	*4*	*75,0%*	*2.20*	*4*	*100,0%*	*2.99*	*6*	*100,0%*	*3.36*
SP-PORT	*4*	*0,0%*	*1.00*	*3*	*0,0%*	*1.00*	*4*	*25,0%*	*1.34*	*3*	*33,3%*	*2.24*
DK	*0*	-	-	*3*	*66,7%*	*1.19*	*5*	*100,0%*	*1.77*	*6*	*100,0%*	*2.40*
Non-EU12	32	93,8%	2.89	43	60,5%	2.03	55	94,5%	3.21	61	93,4%	3.59
Var. NMi			0.38			0.31			0.32			0.29

TABLE 4

Industry diversification and country of origin

	1987			1993			1997			2000		
	total	**% div.**	**NDi**	**total**	**% div.**	**NDi**	**total**	**% div.**	**NDi**	**total**	**% div.**	**NDi**
EU12	189	78.3%	2.08	169	80.5%	2.19	159	77.4%	2.05	161	72.7%	1.82
GER	*51*	*72,5%*	*1.95*	*49*	*87,8%*	*1.15*	*35*	*88,6%*	*2.54*	*34*	*79,4%*	*2.08*
UK-IRE	*51*	*92,2%*	*2.15*	*41*	*78,0%*	*2.86*	*43*	*76,7%*	*1.99*	*41*	*65,9%*	*1.83*
FR	*45*	*75,6%*	*1.78*	*39*	*76,9%*	*2.09*	*29*	*72,4%*	*1.97*	*34*	*82,4%*	*1.75*
IT	*25*	*80,0%*	*2.52*	*25*	*80,0%*	*1.51*	*31*	*80,6%*	*1.79*	*29*	*65,5%*	*1.80*
NL	*9*	*77,8%*	*2.35*	*5*	*100,0%*	*1.78*	*8*	*75,0%*	*2.25*	*8*	*75,0%*	*1.54*
BL-LUX	*4*	*50,0%*	*3.42*	*4*	*75,0%*	*1.23*	*4*	*75,0%*	*1.72*	*6*	*83,3%*	*1.90*
SP-PORT	*4*	*0,0%*	*1.80*	*3*	*33,3%*	*1.04*	*4*	*50,0%*	*1.31*	*3*	*33,3%*	*1.02*
DK	*0*	-	-	*3*	*66,7%*	*1.12*	*5*	*40,0%*	*1.73*	*6*	*66,7%*	*1.49*
Non-EU12	32	78.1%	2.43	43	81.4%	2.00	55	65.4%	1.69	61	71.0%	1.93
Var. NDi			0.23			0.36			0.19			0.18

FIGURE 1

Industry versus geographical diversification

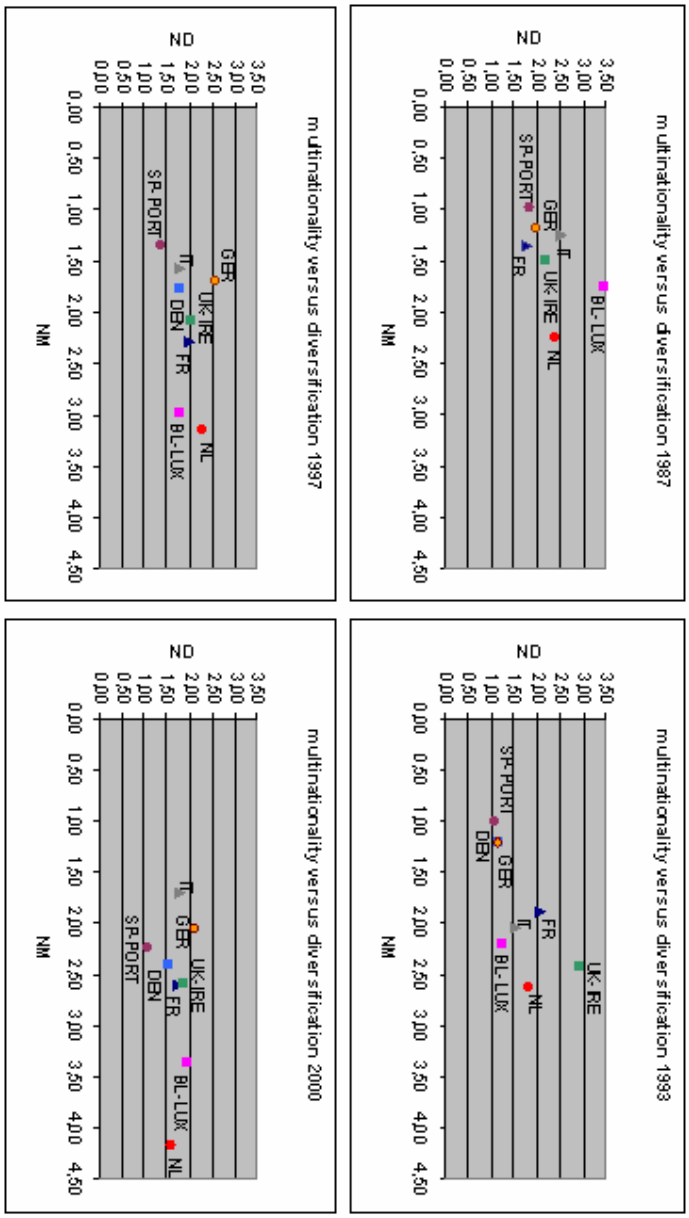

TABLE 5

Effect of country of origin and industry on level of geographical diversification, ANOVA (Sample: surviving firms)

	Dependent variable: level of geographical diversification			
	1987	**1993**	**1997**	**2000**
Independent variables	**(F-values)**			
Country	4.96***	5.68***	4.15***	2.63**
Industry	2.53***	2.40***	1.07	1.54
Model (Pr>F)	< 0.0001	< 0.0001	0.0009	0.0017
R^2	57.2%	57.9%	44.6%	43.2%

*,**, *** indicate significance at the 0.10, 0.05 and 0.01 level resp.

TABLE 6

Impact of specific countries on geographical diversification, ANOVA results (sample: surviving firms)

	Dependent variable: level of geographical diversification			
	1987	**1993**	**1997**	**2000**
Independent variables	**(F-values)**			
BL	0.05	0.77	3.29*	0.58
FR	0.84	0.23	1.74	0.19
NL	0.14	6.41**	3.86*	2.63
GER	3.43*	2.67	1.37	0.91
IT	1.56	0.39	0.06	0.83
SW	0.74	3.60*	5.49**	9.35***
Non-EU	15.74***	14.81***	8.24***	3.89*
industry Food & drinks	3.24*	3.27*	0.10	0.07
industry Textiles, clothes, leather	0.76	0.01	0.08	1.13
industry Wood, paper, publishing	2.09	1.01	0.00	0.68
industry Chemicals	13.55***	5.23**	1.35	0.42
industry Rubber & plastics	12.67***	13.20***	3.20*	0.12
industry Non-metallics	2.15	2.83*	0.63	0.00
industry Metals, metal prod.	0.56	0.20	0.25	1.15
industry Non-electrical machinery	2.21	0.32	0.11	0.23
industry Computers	7.49***	3.22*	1.01	0.83
industry Electrical machinery	1.98	0.33	0.13	0.32
industry Audio, video, telecom, instruments	1.70	1.01	0.58	0.90
industry Cars	3.55*	0.61	0.00	0.49
industry Other transport	0.12	0.00	0.96	0.95
industry Furniture and other	1.54	2.72	0.44	3.60*
Model (Pr>F)	<0.0001	<0.0001	0.0005	0.0004
R^2	*56.6%*	*55.0%*	*43.4%*	*43.9%*

*,**, *** indicate significance at the 0.10, 0.05 and 0.01 level resp.

TABLE 7

Impact of country of origin on international expansion process over the period 1987-2000, linear regression (sample: surviving firms)

	Dependent variable			
	Delta NM 87-00	**Delta NM 87-93**	**Delta NM 93-97**	**Delta NM 97-00**
Independent variables	**(parameter estimates)**			
Intercept	1.70***	0.86***	0.41**	-
NM initial	-0.22	-0.30***	-0.18**	-
BL	0.49	0.34	0.74*	-
FR	0.06	0.23	0.33	-
NL	1.54*	1.58***	0.28	-
GER	-0.68	-0.28	0.09	-
IT	-0.53	0.05	0.04	-
SW	2.99***	0.64	1.03*	-
Non-EU	-0.01	0.43	0.11	-
Model (Pr>F)	<0.0246	<0.0012	0.0784	0.2268
adjusted R²	*9.9%*	*17.4%*	*6.5%*	-

*,**, *** indicate significance at the 0.10, 0.05 and 0.01 level resp.

TABLE 8

Effect of country of origin and industry on the level of industry diversification, ANOVA (Sample: surviving firms)

	Dependent variable: level of industry diversification			
	1987	**1993**	**1997**	**2000**
Independent variables	**(F-values)**			
Country	-	-	-	3.70***
Industry	-	-	-	1.76*
Model (Pr>F)	0.5921	0.1147	0.2336	0.0019
R^2	-	-	-	*43.0%*

*,**, *** indicate significance at the 0.10, 0.05 and 0.01 level resp.

TABLE 9

Impact of country of origin on industry restrucuring process over the period 1987-2000, linear regression (sample: surviving firms)

	Dependent variable			
	Delta ND 87-00	**Delta ND 87-93**	**Delta ND 93-97**	**Delta ND 97-00**
Independent variables	**(parameter estimates)**			
Intercept	0.92***	0.59***	0.19	0.40*
ND initial	-0.54***	-0.21***	-0.15***	-0.29***
BL	0.31	-0.61	0.67*	0.21
FR	0.06	-0.06	0.12	0.01
NL	-0.13	-0.55	0.20	0.04
GER	0.51	-0.01	0.15	0.40
IT	-0.25	0.04	0.14	-0.37
SW	1.00	1.57***	-0.87*	0.67
Non-EU	0.47	0.01	-0.10	0.54**
Model (Pr>F)	<0.0001	0.0022	0.0049	0.0003
adjusted R²	*32.7%*	*16.0%*	*14.1%*	*20.2%*

*,**, *** indicate significance at the 0.10, 0.05 and 0.01 level resp.

TABLE 10

Core and non-core activities in corporate strategy (sample: surviving firms)

	Number (1987) - *exits since 1987*
Leading 1987	
Core	**132**
exits	***18 (14%)***
Non-Core	**54**
exits	***22 (40%)***
Non-leading 1987	
Core	**49**
exits	***15 (31%)***
Non-Core	**324**
exits	***241 (74%)***

Core: industry activity that represents more than 10% of total corporate production

Leading: industry activity in which firm has top5 position within EU

TABLE 11

Effect of core and leading 1987 on exit after 1987, logistic regression (sample: surviving firms)

	Dependent variable
	Exit after 87
Independent variables	**(parameter estimates)**
Intercept	1.07***
Core 87	-1.74***
Leading 87	-1.32***
ND 87	0.19***
BL	-0.61
FR	-0.45
NL	-0.72
GER	-1.16***
IT	-0.39
SW	-0.49
Non-EU	-0.85**
Model (Pr>ChiSq)	<0.0001
R^2	*29.1%*

*,**, *** indicate significance at the 0.10, 0.05 and 0.01 level resp.

TABLE 12

Impact of NM 87, delta ND and country of origin on the international expansion over the period 1987-2000, linear regression (sample: surviving firms)

	Dependent variable			
	Delta NM 87-00	**Delta NM 87-93**	**Delta NM 93-97**	**Delta NM 97-00**
Independent variables	**(parameter estimates)**			
Intercept	2.08***	0.60***	0.59***	1.80***
NM initial	-0.34***	-0.28***	-0.22***	-0.40***
Delta ND 87-00	-0.17**	-0.07**	0.07*	-0.18***
BL	0.64	0.70**	0.22	0.71
FR	-0.30	0.21	0.34**	-0.40
NL	-0.22	0.33	0.27	-0.13
GER	-1.09***	-0.12	0.07	-1.93***
IT	-0.82**	0.24	-0.23	-0.64*
SW	2.50***	1.05***	0.46	2.20***
Non-EU	0.19	0.30*	0.08	0.41
Model (Pr>F)	<0.0001	<0.0001	<0.0001	<0.0001
adjusted R²	*16.2%*	*14.3%*	*11.5%*	*16.2%*

*,**, *** indicate significance at the 0.10, 0.05 and 0.01 level resp.

TABLE 13

Impact of core 87, leading 87, NM 87 and delta ND on international expansion over the period 1987-2000, linear regression (sample: surviving firms)

	Dependent variable			
	Delta NM 87-00	**Delta NM 87-93**	**Delta NM 93-97**	**Delta NM 97-00**
Independent variables	**(parameter estimates)**			
Intercept	2.09***	0.46***	0.61***	1.79***
Core 87	-0.09	0.32***	0.04	-0.09
Leading 87	0.07	0.01	-0.07	0.12
NM initial	-0.33***	-0.33***	-0.22***	-0.39***
Delta ND 87-00	-0.17**	-0.08**	0.07*	-0.18**
BL	0.67	0.68**	0.20	0.75
FR	-0.30	0.21	0.34**	-0.40
NL	-0.20	0.32	0.26	-0.10
GER	-1.10***	-0.07	0.07	-0.95***
IT	-0.84**	0.29*	-0.22	-0.66*
SW	2.51***	1.07***	0.44	2.23***
Non-EU	0.19	0.35**	0.08	0.40
Model (Pr>F)	<0.0001	<0.0001	<0.0001	<0.0001
adjusted R²	*15.6%*	*17.3%*	*10.9%*	*15.6%*

*,**, *** indicate significance at the 0.10, 0.05 and 0.01 level resp.

[i] For a full report of the 1987 analysis and a detailed description of the principles and methodology we refer to Davies et al. (1996). For a thorough analysis of the MSM 93 and MSM 97 see Veugelers et al. (2002).

[ii] Over the period 1991-1994, FDI by multinational companies grew at 12.7% per year. In 1995, FDI reached an unprecedented $315 billion (see Financial Times, 25 September 1996).

[iii] For a full report of the 1987 analysis and a detailed description of the principles and methodology we refer to Davies and Lyons (1996). For a thorough analysis of the MSM 93 and MSM 97 see Veugelers et al (2001).

[iv] In the matrix, Belgium and Luxembourg are considered as one country.

[v] For 1997 and 2000, additional to the limited 'time-comparable' version of the matrix, a second matrix was constructed covering the 15 Member States. For an analysis of these data collections, we refer to Van Pelt et al. (2002).

[vi] Since the 1987 data collection some refinements and elaborations have been made to the dimensions of the matrix (see section 2), however no major changes in methodology have been made.

[vii] The analysis has also been done for the complete sample of firms year by year and resulted in similar outcomes.

[viii] The group of country dummies in this regression analysis is limited since the sample for this analysis is limited to the surviving firms in the matrix. There are no survivors originating from Denmark, Ireland, Spain, Portugal, Austria and Finland in the matrix.